Chapter 5: Barriers to Cardiovascular Health

Introduction

There are numerous barriers, or obstacles, to achieving cardiovascular health (CVH) within both the primary and secondary cardiovascular disease prevention and control arenas. Primary prevention consists of preventing the disease in persons who do not have any symptoms of the disease while secondary prevention consists of preventing discomfort, disability, and death, and reducing expenses among persons with the disease. These barriers can occur within individuals (through a lack of knowledge, skills, or motivation) or within society (through a variety of different settings, such as communities, worksites, schools, faith-based organizations, and the health care system).

Within this chapter, CVH barriers are separated into primary and secondary prevention categories. The primary prevention category addresses individual barriers as well as barriers within the community, worksite, and school settings. The secondary prevention category addresses individual barriers as well as barriers related to health care access and quality of care. While some data are currently available on barriers to CVH within Nebraska, there is a strong need to obtain more data that will help identify and explain additional CVH barriers that can help guide future CVD prevention and control efforts within Nebraska.

Cardiovascular Health Barrier Highlights

Some key barriers to the primary prevention of CVD among Nebraska residents

- People in Nebraska spend excessive amounts of time engaged in electronic sedentary behaviors, such as television viewing, playing video games, or using the computer.
- Many Nebraska youth are using high-risk weight loss methods to try and lose weight, such as fasting, diet pills, vomiting and/or laxative use.
- Most worksites in Nebraska provide little or no support for physical activity.
- Nebraska residents regularly frequent restaurants, fast food shops, and food stands without the selection of the lower-fat items they desire.
- Students at Nebraska elementary schools are not being allowed to walk and bike to school as frequently as they desire.
- Perceived neighborhood safety from crime is an issue for many Nebraska adults, especially for those at lower socioeconomic status and those living in urban environments.
- While public schools in Nebraska (teaching grades 6-12) offer some supports for physical activity and healthy eating, many more opportunities could be provided.

Some key barriers to the secondary prevention of CVD among Nebraska residents

- Most Nebraska adults cannot properly identify all of the signs and symptoms of a heart attack and stroke.
- Less than half of Nebraska adults (35 and older) with high blood pressure, high blood cholesterol, and diabetes take aspirin regularly (among those with no aspirin-related health problems).
- Approximately 145,000 Nebraska adults under 65 years of age (or about 1 in every 7) have no health care coverage.
- EMS response times for heart attack average 40 minutes from dispatch to arrival at a health care facility, and are higher for residents in rural counties.
- Quality of care barriers for CVD exist for Nebraska Medicaid Managed Care enrollees and Nebraska Medicare enrollees.

Barriers to the Primary Prevention of CVD

Electronic Sedentary Behaviors

Introduction

Electronic sedentary behaviors (ESB), including television viewing, video game system use, and computer use, can lead to decreases in activity while simultaneously encouraging increases in caloric intake. Not only do high levels of television use take opportune time away from physical activity, but according to research conducted by the Centers for Disease Control and Prevention (CDC), the incidence of obesity is highest among children who watch four or more hours of television daily. The U.S. Surgeon General recommends decreases in television viewing and other sedentary behaviors for the prevention of overweight and obesity[1].

Electronic Sedentary Behaviors among Nebraska Adults[2]

Adult Indicator Definitions

Regular ESB represents the percentage of Nebraska adults that engage in television viewing (while sitting or lying down) and computer use (outside of work) for 3 or more hours per day.

Excessive ESB represents the percentage of Nebraska adults that engage in television viewing (while sitting or lying down) and computer use (outside of work) for 5 or more hours per day.

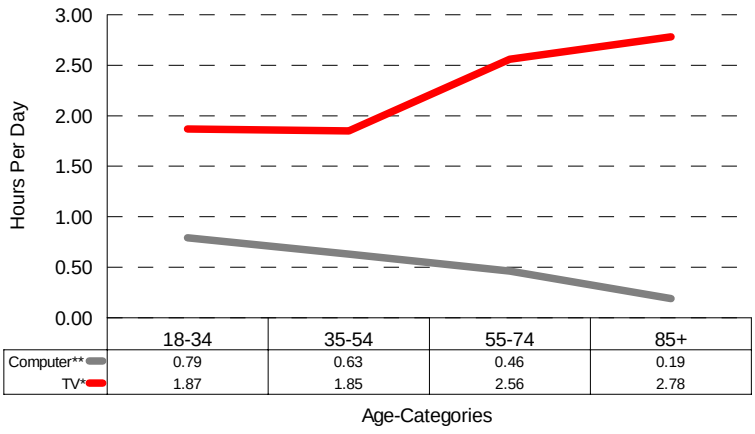
2003 Highlights

- On average, Nebraska adults watch 2 hours and 6 minutes of television (while sitting or lying down) per day and use the computer (while not at work) for 36 minutes per day; for a total of 2 hours and 42 minutes per day.
- 2 in every 5 Nebraska adults (39.8%) engage in regular ESB while about 1 in every 7 (13.6%) engage in excessive ESB.

Descriptive Analysis of ESB

- Among Nebraska adults, as age increases, daily television viewing increases (among adults 35 and older) while daily computer use decreases (Figure 1).

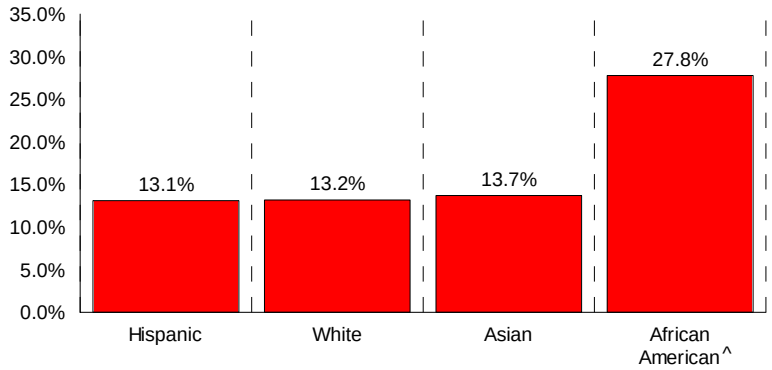
Figure 1: Daily Television Viewing* and Computer Use (in hours) Among Nebraska Adults by Age, 2003**



*Represents the average hours per day watching television while sitting or lying down
**Represents the average hours per day spent using the computer outside of work
Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

- Male adults in Nebraska, compared to female adults, spend more time per day (approximately 22 minutes more) both watching television and using the computer ($p<.01$).
- Among Nebraska adults, as education and income increase, television viewing decreases while computer use increases.
- Among Nebraska adults, average daily computer use between Whites and African Americans is nearly equal (36 and 38 minutes respectively), however African Americans watch nearly an hour more of television per day (2 hours, 59 minutes to 2 hours, 4 minutes respectively) (Figure 2).
- While television viewing does not differ between adults living inside or outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy), daily computer use is higher among urban metropolitan residents.

Figure 2: Excessive ESB* Among Nebraska Adults by Race/Ethnicity, 2003



*Represents the percentage of Nebraska adults that engage in television viewing (while sitting or lying down) and computer use (outside of work) for 5 or more hours per day.
Note: (a) racial categories include non-hispanic only (b) insufficient data for Native Americans
^Difference between race/ethnicity and white is significant at the .001 level
Missing data=1,356 cases (19.3%)
Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Electronic Sedentary Behaviors among Nebraska High School Students[3]

Youth Indicator Definitions

Regular ESB represents the percentage of Nebraska high school students that engage in television viewing, video game system use, and computer use (excluding homework) for 3 or more hours during an average school day.

Excessive ESB represents the percentage of Nebraska high school students that engage in television viewing, video game system use, and computer use (excluding homework) for 5 or more hours during an average school day.

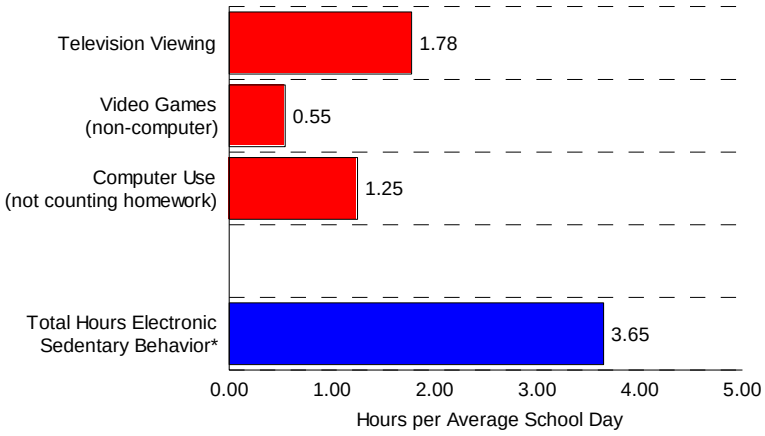
Excessive Television Viewing represents the percentage of Nebraska high school students that watch television for 3 or more hours during an average school day.

2003 Highlights

- Collectively, Nebraska high school students spend more than 3½ hours watching television, using video game systems, or using the computer (excluding homework) during an average school day.
- Specifically, during an average school day, students spend approximately 1 hour and 45 minutes (1.78 hours) watching TV, 1 hour and 15 minutes (1.25 hours) using the computer (excluding homework) and approximately 30 minutes (0.55 hours) playing video games on a video game system (Figure 3).

- Two in every five students (40.4%) engage in regular ESB (3 or more hours during an average school day) while more than 1 in every 4 (27.3%) engages in excessive ESB (5 or more hours during an average school day).
- Greater than 1 in every 4 students (28.0%) engages in excessive television viewing (spends 3 or more hours watching TV during an average school day).

Figure 3: Average Hours of Electronic Sedentary Behavior Among Nebraska High School Students (per average school day), 2003

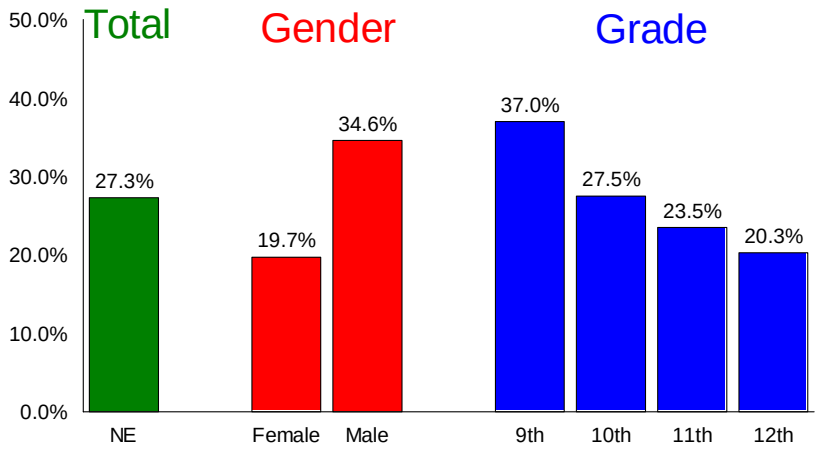


*represents the sum of TV, video games, and computer use.
Source: 2003 Nebraska Youth Risk Behavior Survey

Descriptive Analysis of ESB

- Male students are significantly more likely than female students to engage in both regular (47.9% and 32.5% respectively, p<.001) and excessive ESB (34.6% and 19.7% respectively, p<.001).
- Of all ESBs, the greatest gender disparity occurs in the use of video game systems, where male students, compared to females students, spend more than five times the amount of time playing video games on a video game system (0.91 hours and 0.17 hours per average school day respectively, p<.001).
- As grade level increases, hours of ESB decrease. Ninth grade students compared to 12th grade students, spend approximately 1 hour more per school day engaging in ESB (4.27 hours and 3.28 hours respectively).

Figure 4: Percentage of Nebraska High School Students Engaging in 5+ Hours of ESB During an Average School Day*, 2003



*Percentag of students that watch TV, play video games, or use the computer (not counting homework) for 5 or more hours during an average school day
Source: 2003 Nebraska Youth Risk Behavior Survey

High-Risk Weight Loss Methods

Introduction

There are a variety of methods that one can use to try and lose weight. Unfortunately, for many reasons including poor self esteem, societal pressures to maintain an ideal body image, and a lack of environmental and policy supports for physical activity and healthy eating; many individuals try to lose weight or maintain their current body weight using high-risk weight loss methods.

High-Risk Weight Loss Methods among Nebraska High School Students, 2003[3]

Youth Indicator Definitions

Currently Trying to Lose Weight represents the percentage of Nebraska high school students that reported trying to lose weight during the 30 days preceding the survey.

Using High Risk Weight Loss Methods to Lose Weight represents the percentage of Nebraska high school students that reported fasting (for 24 hours of more), taking diet pills or supplements (without a doctors advice), or vomiting or using laxative to try and lose weight during the 30 days preceding the survey, among those that are currently trying to lose weight.

2003 Highlights

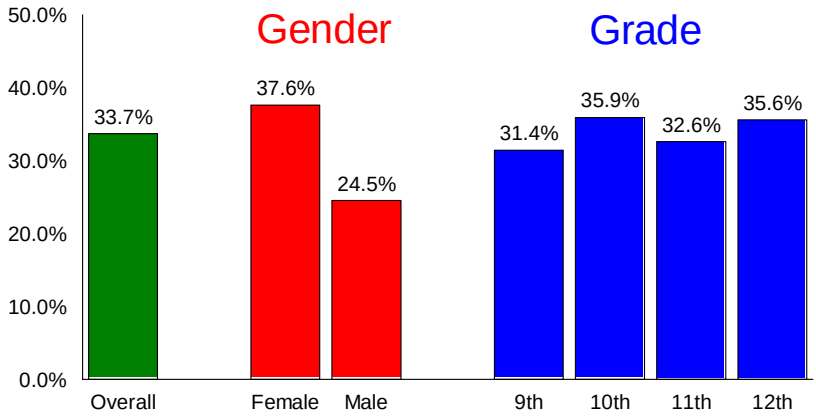
Currently Trying to Lose Weight

- Nearly half of Nebraska high school students (46.3%) are currently trying to lose weight.
- Female students are 2.5 times more likely than male students to report that they are currently trying to lose weight, 65.4 percent to 26.1 percent respectively (p<.001).

Weight Loss Methods

- The encouraging news is that among Nebraska high school students that are currently trying to lose weight, 2 in every 3 (66.9%) use the recommended weight loss method of both diet (including less food, fewer calories, or foods low in fat) and exercise to lose weight.
- However, 1 in every 3 students (33.7%) that are currently trying to lose weight use one or more of the following high-risk weight loss methods to lose weight: fasting (for 24 hours or more), taking diet pills or supplements (without a doctors advice), or vomiting or laxative use (Figure 5).

Figure 5: Percentage of Nebraska High School Students that use High-Risk Weight Loss Methods to Lose Weight*, 2003
Among Students that are Currently Trying to Lose Weight



*Percentag of students that fasted for 24 hours or more, took diet pills or supplements without a doctors advice, or vomited or used laxatives during the 30 days preceding the survey
Source: 2003 Nebraska Youth Risk Behavior Survey

- In particular, fasting (for 24 hours or more) is the most common high-risk weight loss method used by Nebraska students. Among students that are currently trying to lose weight, 1 in every 4 (23.2%) fasts, followed by the use of diet pills/supplements (15.0%) and vomiting/laxative use (10.8%).
- Among students that are currently trying to lose weight, females are 53 percent more likely than males to have used high-risk weight loss methods to lose weight (Figure 5).

Environmental and Policy Barriers

Introduction

Given the number of people in Nebraska engaging in unhealthy behaviors that increase their risk for CVD, public health prevention efforts cannot rely solely upon individualized interventions that target one person at a time. Rather, according to CDC's public health approach, the prevention of CVD risk factors requires coordinated policy and environmental changes that affect large populations simultaneously.

Current research is indicating increased physical activity and healthful eating behaviors within environments that have structural and policy support systems in place that encourage these behaviors. These support systems are most effective in locations where large numbers of people frequent, such as: community neighborhoods, facilities, and events; worksites; schools; faith-based organizations; and the health care system.

Community Barriers to Physical Activity and Healthy Eating

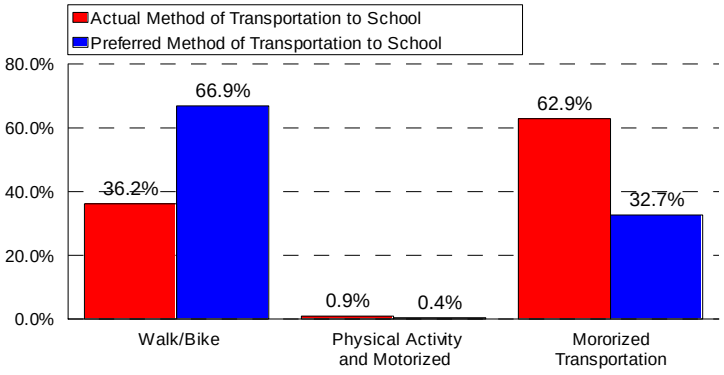
High Calorie Convenience Foods, 2001[4]

- According to a recent report by The National Alliance for Nutrition and Activity (NANA), portion sizes for most food and beverage in the United States have increased substantially over time[5]. These increases (due in large part to "value marketing") are particularly noticeable within the fast-food industry; where an original McDonald's burger, fries, and 12-ounce Coke provided 590 calories, today's super sized Quarter Pounder with Cheese meal provides 1,550 calories[5].
- About 1 in every 7 (14.6%) Nebraska adults eats meals from a restaurant, fast food shop, or food stand (including take out or delivery) an average of at least 1 time per day, while about 1 in every 4 (23.8%) frequents them an average of at least 4 times per week.
- Although restaurants are beginning to incorporate more heart healthy options into their menus, about 3 in every 4 (74.4%) Nebraska adults would still like to see more lower-fat options available in restaurants, fast food shops, and food stands.
- The positive news is that data are supporting the consumption of low-fat items when they are available. Among Nebraska adults with lower-fat items available at the restaurants they patron, more than half (56.5%) order lower-fat items (usually, often, or sometimes when eating meals from a restaurant, fast food shop, or food stand).

Parent/Community Support for Youth Physical Activity, 2003[6]

- Among 1,417 Nebraska elementary school students that participated in the 2003 Nebraska Walk-to-School Day Event, there is clearly a stronger desire to get to school by walking and biking than is permitted by their parents/ legal guardians (Figure 6). While about 2 in every 3 of these students (66.9%) would prefer to walk or bike to school, just 1 in every 3 (36.2%) usually gets to school by walking or biking.

Figure 6: Actual vs Desired method of transportation for getting to elementary school in Nebraska, Among youth that participated in the 2003 Nebraska Walk-to-School Day event

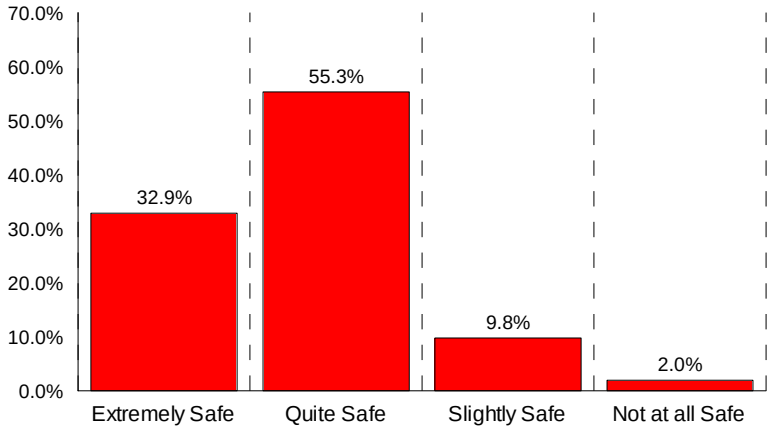


Note: Results represent only the views of 1,417 Nebraska students in grades K-8 from 12 schools that participated in the 2003 Nebraska Walk-to-School Day event at their school. Results are not intended to be respresentative of all Nebraska students in grades K-8.
Source: 2003 Walk-to-School Day Walkability Checklist Survey Results

Perceived Neighborhood and Community Safety, 2001[4]

- While about 1 in every 3 Nebraska adults feels extremely safe from crime in their neighborhood, more than 1 in every 10 (11.8%) feels only slightly or not at all safe.
- Some Nebraska subpopulations are more likely than others to feel unsafe from crime within their neighborhoods:
  - Among Nebraska adults, those with low education and income are twice as likely as those with high education and income to feel just slightly or not at all safe from crime in their neighborhood, 19.1 percent and 9.6 percent respectively (p<.01).
  - Nebraska adults living within Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy) are twice as likely (relative risk 2.1) as those living outside of Nebraska's three urban metropolitan counties to feel just slightly or not at all safe from crime in their neighborhood, 16.2 percent and 7.9 percent respectively (p<.001).

Figure 7: Perceptions of Neighborhood Safety from Crime* Among Nebraska Adults, 2001



*Percentage of Nebraska adults reporting, "how safe from crime do you consider your neighborhood to be?"
n=1,215 valid cases, 14 missing cases (1.1%)
Source: 2001 Nebraska CVD Survey

Worksite Supports for Physical Activity, 2001[4]

2001 Highlights reported by Nebraska adults that are employed

Overall

- 22.5 percent of worksites have exercise equipment such as a gym, pool, or other facilities for employees to use for physical activity.
- 16.6 percent of worksites offer regular physical activity programs, such as exercise classes, fitness counseling, or walking clubs.
- 25.8 percent of worksites encourage employees to exercise more by offering flexible work hours, or by encouraging activities such as using the stairs instead of the elevator and exercising during break times.
- 20.4 percent of worksites pay at least some of the cost for employees to join a health club or attend exercise classes that are not at the worksite.
- Collectively, about 2 in every 5 (40.4%) worksites have one or more of these four physical activity supports (Figure 8). However, less than 1 in every 10 worksites (8.8%) has three of the four supports in place while less than 1 in every 20 worksites (4.3%) has all four supports in place.

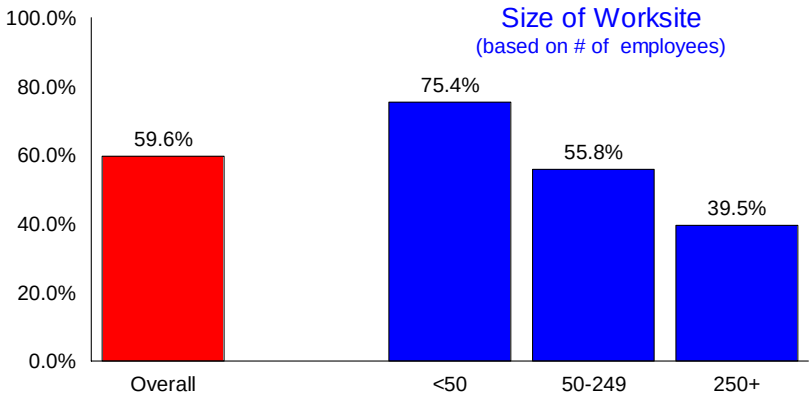
Differences by the number of employees within the worksite

- As the number of employees within the worksite increase, supports for physical activity increase. Worksites with 250 or more employees are 2.5 times more likely than worksites with less than 50 employees to offer one or more supports for physical activity.

Use of physical activity supports

- The key question for most worksites to consider is "what is the cost to benefit ratio," or "will people use the supports if they are in place?" Nebraska data are supporting usage of these supports. Among Nebraska adults that are employed and have one or more physical activity supports within their worksite, 1 in every 4 (24.2%) used a physical activity support at their worksite during the four months preceding the survey. Males were nearly twice as likely as females to use a physical activity support during the four months preceding the survey, 32.4 percent and 16.7 percent respectively (p<.01).

Figure 8: the percentage of Nebraska worksites that do not provide support for physical activity among employees*, 2001
*According to Nebraska adults that are employed***



*According to Nebraska adults that are employed, the percentage of worksites that do not have or support any of the following at their worksite: exercise equipment or facilities, physical activity programs, encouragement for physically activity (through flex-time or stair use), or financial assistance for gym memberships or exercise programs
Source: 2001 Nebraska CVD Survey

School Supports for Physical Activity and Healthy Eating

Healthy Eating Supports Within Nebraska Schools

According to Nebraska School Principals (of 6-12 grade public schools)

- 81 percent offer snacks foods and beverages in vending machines or a canteen/snack bar[7].
- Foods available in schools with vending machines or a canteen/snack bar[7]:
  - 97% - Soft drinks, sports drinks, of fruit drinks (that are not 100% juice)
  - 85% - Bottled water
  - 79% - 100% fruit juice
  - 60% - Non-chocolate candy
  - 59% - Chocolate candy
  - 58% - Salty snacks (not low-fat)
  - 57% - Salty snacks (low-fat)
  - 49% - Low fat baked goods
  - 23% - Fruits and Vegetables
- 52 percent allow the purchase of snack foods during school hours when meals are not being served, while 28 percent allow the purchase of snack foods during meal times[7].
- 73 percent have a contract with a soft drink company, such as Coca-Cola, Pespi-Cola, or Dr. Pepper, giving the company exclusive rights to sell soft drinks in the school[8].
- 17 percent provide less than 20 minutes for students to eat lunch once they are seated[7].
- 12 percent allow fast food (e.g., Pizza Hut, Taco Bell, Subway) to be offered at school meals while an additional 11 percent allow these as a la carte items[8].
- 4 percent have a policy stating fruits and vegetables will be offered at school settings (such as parties, after school programs, staff meetings, parent meetings, or concession stands)[7].

According to Lead Health Education Teachers within 6-12 grade public schools in Nebraska, 2002[9]

- Each of the following was taught in a required health education course:
  - 93% - Benefits of healthy eating
  - 88% - Aiming for a healthy weight through balancing diet and physical activity
  - 87% - Eating disorders
  - 87% - The risks of unhealthy weight-control practices
  - 84% - Accepting body size differences
  - 84% - Choosing a diet low in saturated fat/cholesterol and moderate in total fat
  - 84% - The Food Pyramid
  - 82% - Choosing a variety of fruits and vegetables
  - 81% - Choosing a variety of grains (especially whole grains)
  - 80% - Moderating the intake of sugars
  - 79% - Using food labels
  - 77% - Eating more calcium-rich foods
  - 75% - Preparing healthy meals and snacks
  - 72% - Choosing and preparing foods with less salt
  - 72% - Keeping food safe to eat
- During the two years preceding the survey, 23 percent of lead health education teachers participated in staff development activities about nutrition and dietary behavior; however, 46 percent would like staff development activities about nutrition and dietary behavior.

According to parents/community residents, 2001[4]

- 93.8 percent of Nebraska adults feel that their local public school system should require that all sources of food and drink at school include healthy choices (including cafeteria, vending machines, and school snack bars).

Physical Activity Supports Within Nebraska Schools

According to Nebraska School Principals (of 6-12 grade public schools)

- 99 percent require at least some physical education for students[7].
- 93 percent require that a newly hired physical education teacher or specialist be certified, licensed, or endorsed by the state in physical education[7].
- Among schools that require health education, 77 percent combine required health classes with physical education classes[7].
- 65 percent require that students repeat a required physical education class if failed[7].
- 31 percent of schools allow faculty and staff to use physical activity as punishment (such as running laps and push-ups) for poor behavior in physical education classes[7].
- 42 percent offer opportunities for students to participate in intramural activities or physical activity clubs, however just 15 percent provide transportation home for students who participate in such activities[7].
- 47 percent support walking and bicycling to school[8].
- 46 percent allow children or adults in the community to use indoor physical activity and athletic facilities without being in a supervised program (Figure 9)[8].
- 70 percent allow children or adults in the community to use outdoor physical activity and athletic facilities without being in a supervised program (Figure 9)[8].

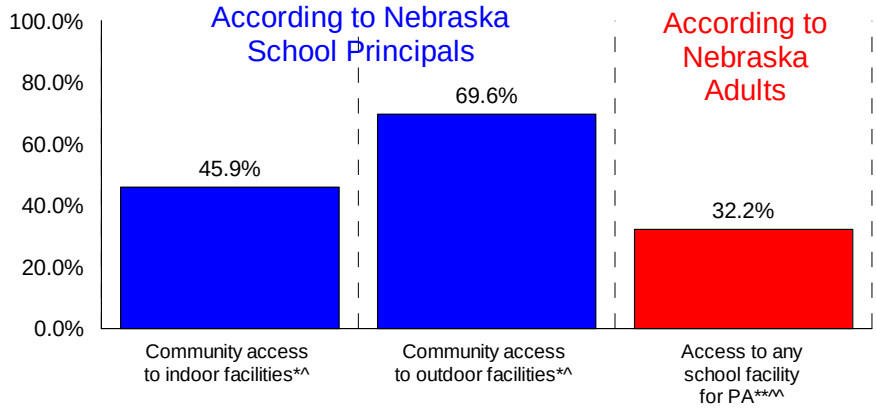
According to Lead Health Education Teachers within 6-12 grade public schools in Nebraska, 2002[9]

- Each of the following physical activity related topics was taught in a required health education course:
  - 92% - Physical, psychological, or social benefits
  - 91% - Health-related fitness
  - 89% - Dangers of performance-enhancing drugs, such as steroids
  - 86% - Phases of a workout
  - 84% - Preventing injury during physical activity
  - 83% - Decreasing sedentary activities
  - 81% - How much physical activity is enough
  - 78% - Weather-related safety
  - 73% - Opportunities for physical activity within the community
  - 70% - Developing an individualized physical activity plan
  - 64% - Monitoring progress toward reaching goals
  - 65% - Overcoming barriers to physical activity
- During the two years preceding the survey, 33 percent of lead health education teachers participated in staff development activities about physical activity and fitness; however, 47 percent would like staff development activities about physical activity and fitness.

According to parents/community residents, 2001[4]

- 32.2 percent of Nebraska adults report that they personally have access to school facilities (either public or private) in their area outside of normal school hours for the purpose of physical activity; a much lower percentage than reported by school principals (Figure 9).
- Among Nebraska adults with access to any school facilities in their area for physical activity, 23.3 percent used one or more of these facilities during the four weeks preceding the survey.
- 96.3 percent of Nebraska adults feel that local schools should require physical education for all students.

Figure 9: Community Access to School Facilities for Physical Activity, according to Nebraska school principals and adults



*Accoring to Nebraska public school principals (of grades 6-12), the percentage of schools allowing children or adults to use indoor or outdoor physical activity/athletic facilities without being in a supervised program
**Percentage of Nebraska adults reporting that they have access to school facilities in their area, outside of normal school hours, for physical activity
^Source: 2002 Nebraska School Health Education Profile
^^Source: 2001 Nebraska CVD Survey

Barriers to the Secondary Prevention of CVD

Heart Attack and Stroke Signs and Symptoms and the importance of 911

Introduction

Heart disease and stroke are serious diseases that require immediate medical care. According to the CDC, almost half of all cardiac deaths in 1999 occurred before emergency services and hospital treatment could be administered[10]. Similarly, the proportion of stroke deaths that occur before patients are transported to hospitals has increased to nearly half of all stroke deaths[11]. This is particularly concerning because thrombolytic drugs (used to treat stroke) have a limited window for administration. Properly recognizing the signs and symptoms of heart attack and stroke and acting immediately by calling 9-1-1 saves lives.

Heart attack warning signs include[10]:

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts for more than a few minutes, or goes away and comes back. The discomfort can feel like uncomfortable pressure, squeezing, fullness, or pain.
- **Discomfort in other areas of the upper body.** Can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- **Shortness of breath.** Often comes along with chest discomfort, but it can occur before chest discomfort.
- **Other symptoms.** May include breaking out in a cold sweat, nausea, or light-headedness.

Stroke warning signs include[12]:

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body.
- Sudden confusion, trouble speaking or understanding.
- Sudden trouble seeing in one or both eyes.
- Sudden trouble walking, dizziness, loss of balance or coordination.
- Sudden, severe headache with no known cause.

Recognition of Heart Attack and Stroke Signs and Symptoms and 9-1-1 as the first emergency response option for heart attack and stroke among Nebraska Adults, 2001[4]

National Healthy People 2010 Objectives[13]

- Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 9-1-1 (#12-2).
  - 11 percent among Nebraska adults in 2001
- Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke (#12-8).
  - 19 percent among Nebraska adults in 2001

2001 Highlights (Table 1)

- Approximately 1 in every 8 Nebraska adults (13.1%) can correctly identify all heart attack signs and symptoms, 1 in every 5 (19.3%) can correctly identify all stroke signs and symptoms, and nearly 9 in every 10 (87.4%) recognize 9-1-1 as the first emergency response option for heart attack and stroke.
- However, collectively, just 1 in every 22 Nebraska adults (4.5%) can correctly identify all heart attack and stroke signs and symptoms and recognize 9-1-1 as the first emergency response option for heart attack and stroke.

Descriptive Analysis

Age

- Nebraska adults aged 75 years and older (1.8%) are less likely than Nebraska adults aged 35-54 (5.9%) and 55-74 (8.6%) years to correctly identify all heart attack signs and symptoms and recognize 9-1-1 as the first emergency response option for heart attack and stroke. This is particularly concerning since adults aged 75 years and older are at much greater risk for heart attack and stroke than younger adults.

Gender

- While the gender difference in correct knowledge of heart attack signs and symptoms is non-significant, females are more likely than males to both correctly identify all stroke signs and symptoms and recognize 9-1-1 as the first emergency response option for heart attack and stroke (Table 1).

Education & Income

- The most dramatic education and income disparity occurs in the recognition of stroke signs and symptoms. Nebraska adults with high education and income are 2.9 times more likely than Nebraska adults with low education and income to correctly identify all stroke signs and symptoms, 28.1 percent and 9.8 percent respectively (sig at .001 level).

Urban/Rural

- Recognition of heart attack and stroke signs and symptoms and 9-1-1 as the first emergency response option for heart attack and stroke does not differ by urban metro and non-urban metro county classification.

Table 1: Knowledge of Signs, Symptoms, and Emergency Response for Heart Attack and Stroke Among Nebraska Adults, 2001

	Overall		Male		Female		Relative Risk
	n*	Weighted %	n*	Weighted %	n*	Weighted %	M:F**
Can correctly identify all heart attack signs and symptoms	1,196	13.1%	403	12.8%	793	13.3%	0.96
Can correctly identify all stroke signs and symptoms	1,189	19.3%	400	15.7%	789	22.7%	0.69^
Recognize 9-1-1 as the first emergency response option for heart attack and stroke	1,194	87.4%	403	85.3%	791	89.4%	0.95^
Can correctly identify all heat attack and stroke signs and symptoms and recognize 9-1-1 as the first emergency response option for heart attack and stroke	1,185	4.5%	399	2.6%	786	6.3%	0.41^

*Non-weighted sample size value
**Relative risk represents the male to female percentage ratio
^The difference between males and females is significant at the .05 level.
Source: 2001 Nebraska CVD Survey

Aspirin Use

Introduction

The American Heart Association recommends aspirin use for patients who have had a myocardial infarction (heart attack), unstable angina, ischemic stroke (caused by blood clot) or transient ischemic attacks (TIAs or "little strokes"), if not contraindicated[14]. This recommendation is based on sound evidence from clinical trials showing that aspirin helps prevent the recurrence of such events as heart attack, hospitalization for recurrent angina, second strokes, etc. (secondary prevention)[14]. Studies show aspirin also helps prevent these events from occurring in people at high risk (primary prevention)[14].

Aspirin Use among Nebraska Adults aged 35 years and older[4]

2001 Highlights for Nebraska adults aged 35 years and older

- About 1 in every 12 (8.1%) cannot take aspirin for health-related reasons (including both stomach and non-stomach related problems); thus indicating that aspirin use is possible among most, but not all residents.
- Among those with no aspirin-related health problems, about 1 in every 3 (34.1%) takes aspirin daily or every other day. This percentage dramatically increases as age increases, with 60.2 percent of adults 65 years and older taking aspirin daily or every other day.

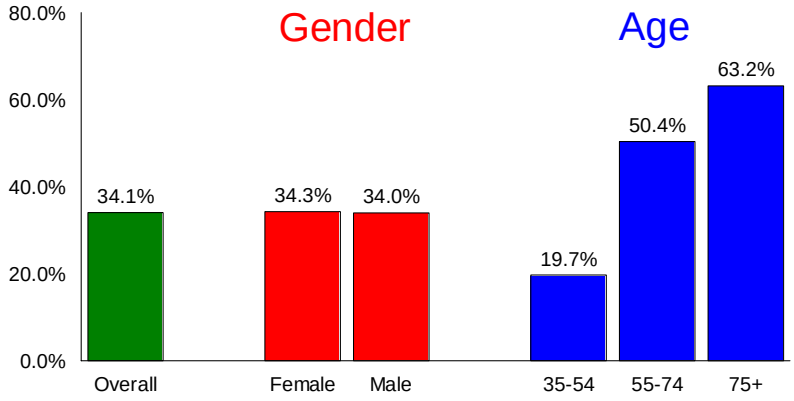
Aspirin use among high-risk individuals with no aspirin related health problems

- Among those with diagnosed CVD (have had a heart attack, stroke, or have been told that they have coronary heart disease), just 2 in every 3 takes aspirin daily or every other day.
- Less than half of those with diagnosed high blood pressure (48.1%), diagnosed high blood cholesterol (45.1%), and diagnosed diabetes (47.8%) are currently taking aspirin daily or every other day.

Why aspirin is taken

- It is encouraging that among those currently taking aspirin, about 4 in every 5 (82.4%) report taking aspirin to reduce the chance of having a heart attack or stroke.

Figure 10: Percentage of Nebraska Adults that Take Aspirin Regularly, Among Those 35 and Older With No Aspirin Related Health Problems, 2001



*Among Nebraska adults, aged 35 years and older, with no aspirin related health problems, the percentage that takes aspirin either daily or every other day
Source: 2001 Nebraska CVD Survey

Access to Health Care

Introduction

"The U.S. health care system is rapidly changing. As this system evolves, health care plans (e.g., health insurance, prepaid plans such as HMOs, and government plans such as Medicaid and Medicare) need to ensure that all Americans have access to affordable, high-quality preventive services, including screening for early detection of chronic diseases."[13]

No Health Care Coverage among Nebraska Adults Aged 18-64 Years, 2002[15]

Nebraska HP2010 Objective[16]: 100% coverage among adults aged 18-64 years (#1-1)

2002 Highlights

- Nearly 1 in every 7 Nebraska adults aged 18-64 years (13.7%) has no health care coverage, an estimated 130,000 to 160,000 residents.

Trends

- Compared to the late 1990's, estimates for no health care coverage among Nebraska adults aged 18-64 years have increased. While just under 10 percent of Nebraska adults aged 18-64 years were without health care coverage from 1997 to 1999, significantly more were without health care coverage in 2001 (16.5%) and 2002 (13.7%).

Compared to the Nation and Bordering States in 2002, among all adults aged 18 years and older[17]

- Nebraska ranks well compared to the nation. Out of 54 U.S. states and territories, Nebraska ranks tied for 18th lowest (with South Dakota) in the percentage of all adults (18 and older) that do not have any health care coverage (interquartile range 11.4% to 17.9%).
- Compared to bordering states, Nebraska adults are less likely to have no health care coverage than adults in Colorado (16.6%) and Wyoming (17.2%) while more likely to have no health care coverage than adults in Iowa (8.8%) ($p<.001$ respectively).

Descriptive Analysis of No Health Care Coverage Among Nebraska Adults Aged 18-64 years

Age

- As age increases, the percentage of Nebraska adults with no health care coverage decreases. Frighteningly, among Nebraska adults aged 18-24 years, 1 in every 5 has no health care coverage (21.1%).

Gender

- Approximately 1 in every 9 adult females in Nebraska (11.2%) has no health care coverage compared to approximately 1 in every 6 adult males (16.2%); indicating that males are 45 percent more likely than females to have no health care coverage ($p<.001$).

Education & Income

- Among Nebraska adults aged 18-64 years, as level of education and income increase, the percentage of Nebraska adults with no health care coverage decreases. Strikingly, among Nebraska adults aged 35-64 years, those with low education and income are 22.5 times more likely than adults with high education and income to have no health care coverage (38.2% and 1.7% respectively).

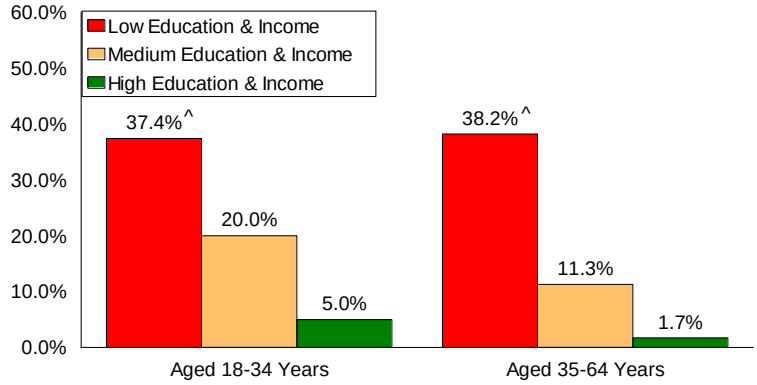
Race/Ethnicity Highlights from 2001 & 2002 (combined)

- Compared to Whites in Nebraska, Hispanics, African Americans, and Native Americans are more likely to have no health care coverage (Figure 12).

Urban/Rural

- Adults living outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy) are more likely than adults living within Nebraska's three urban metropolitan counties to have no health care coverage.

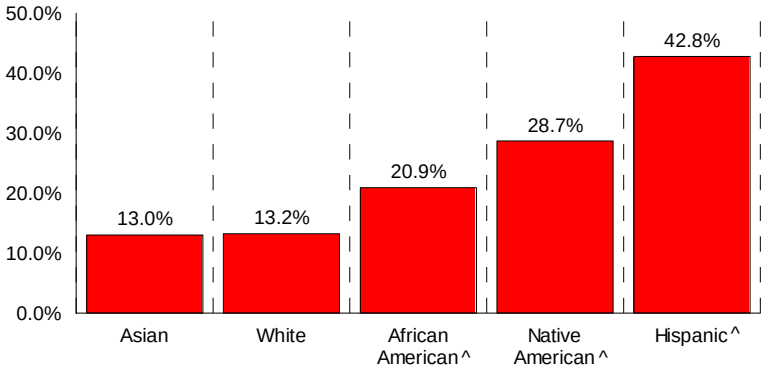
Figure 11: No Health Care Coverage* Among Nebraska Adults by Education & Income, 2002**



*Adults that do not have any kind of health care coverage, including health insurance, prepaid plans, or government plans
^Significantly higher than medium and high ed/inc at the .01 level
Listwise n=2,855 valid cases, 356 missing cases (11.1%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc= ≥$35K income and education beyond high school

Figure 12: No Health Care Coverage* Among Nebraska Adults Aged 18-64 Years by Race/Ethnicity, 2001-2002



*Adults that do not have any kind of health care coverage, including health insurance, prepaid plans, or government plans
Note: racial categories include non-hispanic only
^Difference between race/ethnicity and white is significant at the .05 level
Missing data=194 cases (1.6%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

EMS Response Times[18]

In 2000, the average EMS response time for a suspected cardiac event in Nebraska was: 10:10 from dispatch to the scene (or individual in need) and 29:55 from the scene to the health care facility (Figure 17). This indicates that the average Nebraska resident in need of EMS for a suspected cardiac event can expect arrival at a health care facility approximately 40 minutes after the EMS unit is dispatched.

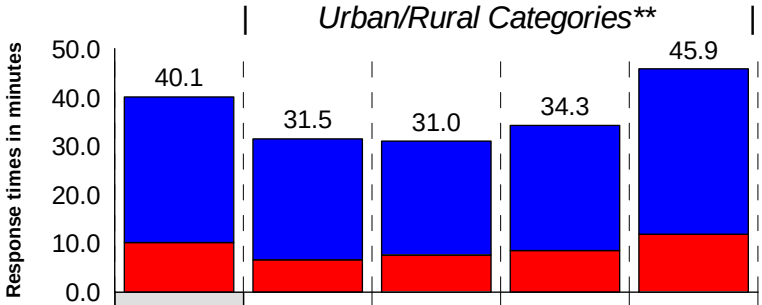
It only takes 4 minutes for the body to sustain brain damage without oxygen. Thus, it is most critical that dispatch to scene times are kept as short as possible. The current dispatch to scene time of 10:10 for cardiac events in Nebraska indicates that many residents likely receive permanent damage or death that could be prevented if faster medical care were available.

Due, in part, to the low population density within many regions of Nebraska, EMS response times for cardiac events differ by place of residence. Nebraska residents of rural-small counties receive longer dispatch to scene (11:52) and scene to health care facility (33:59) times than residents of urban metro (6:39,24:50), non-urban metro (7:35,23:26), and rural-large counties (8:30,25:46). In 2000, EMS dispatch to scene times for cardiac events were, on average, at least 3 minutes and 22 seconds longer in rural-small counties compared to the other three urban/rural regions.

In addition to varying EMS response times across Nebraska, the quality of 9-1-1 telephone coverage differs dramatically by place of residence. This indicates that residents within rural-small Nebraska counties are not only at greater risk from longer transport times, but also may experience complications that delay EMS dispatch..

Some additional information on EMS response times is available within Chapter 3 of this report.

Figure 13: EMS Response Times (in minutes) for Cardiac Events* from Dispatch to Arrival at the Health Care Facility Among Nebraska Residents by Urban/Rural, 2000



	Overall Nebraska	Urban Metro	Urban Non-Metro	Rural-Large	Rural-Small
Number of Transports^	5,584	2,107	1,520	1,053	904
Scene to Hospital (minutes)	29.9	24.8	23.4	25.8	34.0
Dispatch to Scene (minutes)	10.2	6.7	7.6	8.5	11.9

*Includes the average response times (for the times reported) for suspected cardiac events including chest pain, myocardial infactrion, and cardiac arrest
**See methodology for further detail on urban/rural classifications
^This is the minumum number of known transports for suspected cardiac events (some may go unreported)
Source: Nebraska EMS Data

Quality of Care

Introduction

Each year, more than 57,000 Americans die needlessly because they do not receive appropriate health care[19]. Most die from known conditions (about 50,000) such as high blood pressure or elevated cholesterol not being adequately monitored and controlled[19]. Other deaths occur from failure to provide correct preventive or follow-up care[19].

Effectiveness of Care Measures

HEDIS is a tool used to measure performance on important dimensions of care and service and is used by most American health plans. The intent of HEDIS is to provide purchasers and consumers with the information they need to reliably compare the performance of managed health care plans.

Centers for Medicare and Medicaid Services (CMS) Quality Measures are a set of measures looking at the quality of care for numerous health conditions. Within this report, CMS quality measures are specific to Medicare enrollees only.

Quality of Care within Managed Care Plans

Controlling High Blood Pressure

HEDIS Indicator Definition[19]

Controlling High Blood Pressure represents the percentage of adults aged 46-85 years with diagnosed hypertension that have their blood pressure adequately controlled (both the systolic and diastolic pressure must have been ≤140/90 mm/Hg).

2002 National Highlights[19] (Table 2)

- Nationally, in recent years, high blood pressure control has increased among individuals covered by commercial, Medicaid, and Medicare insurance plans.

2003 Nebraska Data for Medicaid Managed Care Enrollees[20] (Table 3)

- Within Nebraska, half of Nebraska Medicaid managed care enrollees (49.9%) with hypertension had their blood pressure controlled.

Cholesterol Management after a Heart Attack

HEDIS Indicator Definition[19]

Cholesterol Management after a Heart Attack represents the percentage of adults aged 18-75 years who had evidence of an acute cardiovascular event and whose LDL-C was screened and controlled to less than 130 mg/dL in the year following the event.

2002 National Highlights[19] (Table 2)

- Nationally, cholesterol management rates increased among individuals covered by commercial, Medicaid, and Medicare insurance plans, however Medicaid and Medicare organizations showed the most significant improvements.
- Nationally, rates for both control and screening of cholesterol within Medicaid plans appear substantially lower than rates within both Medicare and Commercial plans.

Advising Smokers to Quit

HEDIS Indicator Definition[19]

Advising Smokers to Quit represents the percentage of adults aged 18 years and older who were either current smokers or recent quitters, were seen by a practitioner and received advice to quit smoking in the past year.

2002 National Highlights[19] (Table 2)

- Nationally, across all plans, around 2 in every 3 self-identified smokers was seen by a practitioner and received advice to quit smoking in the past year.

Beta-Blocker Treatment after a Heart Attack

HEDIS Indicator Definition[19]

Beta-Blocker Treatment after a Heart Attack represents the percentage of adults aged 35 years and older who were hospitalized and discharged from a hospital after surviving a heart attack who received a prescription for beta-blocker.

2002 National Highlights[19] (Table 2)

- Nationally, since 1999, Beta-Blocker Treatment after a Heart Attack increased across all plans. In 2002, all plans were at 90 percent or higher.

CMS Quality Measures Indicator Definitions[21]

Beta-Blocker at Arrival represents the percentage of AMI patients without beta-blocker contraindications who received a beta blocker within 24 hours after hospital arrival.

Beta-Blocker Prescribed at Discharge represents the percentage of AMI patients without beta-blocker contraindications who received a beta-blocker at hospital discharge.

2002 Nebraska Data for Medicare Enrollees[21] (Table 2)

- Within Nebraska, about 3 in every 4 Medicare enrollees (77.8%) received a beta-blocker at hospital arrival while nearly 9 in every 10 (88.0%) received a beta-blocker at discharge.

Comprehensive Diabetes Care

HEDIS Indicator Definition[19]

Comprehensive Diabetes Care includes a variety of different factors that are important to diabetes care. The measures represent the percentage of adults aged 18-75 years that, during the measurement year, had: (a) an HbA1c test, (b) poorly controlled HbA1c (>9.5%), (c) a serum cholesterol level (LDL-C) screening, (d) their cholesterol level (LDL-C) controlled to less than 130 mg/dL, (e) an eye exam, and (f) a screening for kidney disease (microalbuminuria test).

2002 National Highlights[19] (Table 2)

- Nationally, rates for comprehensive diabetes care improved overall, but performance varied widely across different plans.

2003 Nebraska Data for Medicaid Enrollees[20] (Table 3)

- Within Nebraska, the majority of Medicaid managed care enrollees with diabetes received a HbA1c test as well as an LDL-C cholesterol screening during 2003 (83.0% and 73.2% respectively), however just half received a screening for diabetic nephropathy (49.9%) while only 2 in every 5 (42.1%) received an eye exam.

One of the gaps in Nebraska's health-related data is a thorough understanding of quality of care related to CVD and its associated risk factors for residents covered by different insurance plans. Currently, some HEDIS measures related to CVD and its associated risk factors are reported for Nebraska Medicaid managed care enrollees and Nebraska Medicare enrollees. However, there is additional information available for Medicaid, Medicare, and individuals on private insurance that has not been compiled and/or reported. Accessing and reporting all available quality of care data, as well as exploring other opportunities to collect new quality of care information, would enhance Nebraska's ability to improve and monitor the quality of cardiovascular care in Nebraska.

Table 2: HEDIS Quality of Care Measures Related to CVD for U.S. Residents Covered by Managed Care Plans, 2002

	Commercial	Medicare	Medicaid	Number of Lives That Could be Saved Through*
Blood Pressure				
Controlling high blood pressure	58.4%	56.9%	53.4%	28,300
Blood Cholesterol				
Cholesterol screening after a heart attack	79.4%	77.7%	57.8%	
Cholesterol screened and controlled after a heart attack	61.4%	62.3%	36.7%	6,500
Smoking Cessation				
Advising Smokers to Quit	67.7%	61.5%	63.6%	2,700
Beta-Blocker Treatment				
Beta-blocker treatment after a heart attack	93.5%	93.0%	90.1%	1,700
Diabetes				
HbA1c Test	82.6%	85.0%	74.0%	
HbA1c Poorly Controlled**	33.9%	24.5%	48.2%	13,600
Cholesterol (LDL-C) screening	85.1%	87.9%	71.7%	
Cholesterol control	54.8%	62.6%	43.9%	
Eye Exam	51.7%	68.4%	47.1%	
Screening for Diabetic Nephropathy	51.8%	57.3%	47.8%	

*Number of preventable deaths in America if recommended care was given at the rates seen in the 90th percentile
**Lower percentages are better
Note: definitions for each HEDIS measure can be found under the appropriate sub-heading within this chapter
Source: The State of Health Care Quality, 2003. National Committee for Quality Assurance.

Table 3: Quality of Care Measures Related to CVD for Nebraska Residents Covered by Medicare and Medicaid, 2003

Medicaid Managed Care Enrollees*	
Blood Pressure	
Controlling high blood pressure	49.9%
Diabetes	
HbA1c Test	83.0%
Cholesterol (LDL-C) screening	73.2%
Eye Exam	42.1%
Screening for Diabetic Nephropathy	49.9%
Medicare Enrollees**	
Beta-Blocker Treatment After a Heart Attack	
Beta-Blocker at Arrival	83.0%
Beta-Blocker Prescribed at Discharge	73.2%

Note: definitions for each measure can be found under the appropriate sub-heading within this chapter
*Source: Nebraska Medicaid Claims Data, 2003
**Source: CMS-CDAC Medicare records from CIMRO of Nebraska

Quality of Care within U.S. Hospitals

Introduction

The American Heart Association developed and implemented a national quality improvement initiative, entitled Get With The Guidelines, to help hospitals redesign systems of care to improve guidelines adherence in patients admitted with heart disease and stroke.

The data within Table 4 represent pre-intervention data from 30 consecutive patients at 120 U.S. hospitals[22]:

Table 4: Performance on CVD Related Indicators with U.S. Hospitals

Performance Indicator	Percent of Inpatients
a. Aspirin within 24 yours of admission	75.3%
b. Aspirin at discharge	93.2%
c. Beta-blocker within 24 hours of admission	62.0%
d. Beta-blocker at discharge	79.4%
e. ACE-inhibitor at discharge for patients with LVEF <40%	63.6%
f. Lipid therapy at discharge	66.5%
g. Lipid therapy at discharge if LDL >100 mg/dL	72.8%
h. Blood pressure therapy at discharge	74.5%
I. Smoking cessation counseling	57.2%
j. Referral to cardiac rehabilitation	65.0%

Source: Get With The Guidelines, American Heart Accocaiation
Note: these data represent pre-intervention performance and highlight treatment gaps for each performance indicator